

Amendments to the Claims:

1. (currently amended) ~~A rotary flow-through~~ An electrodeposition apparatus comprising:
a platen rotatable about a first axis;
an ~~a rotary flow-through~~ electrolytic cell rotatably mounted upon said platen and rotatable about a second axis, said second axis being offset from and parallel to said first axis; and
an electrode assembly disposable into said electrolytic cell;
wherein when said platen is rotated and said electrolytic cell is rotated ~~faster than rotation of said platen~~, said electrolytic cell ~~undergoes~~ undergoing planetary revolution with respect to said first axis~~[[.]]~~ ; and
wherein said planetary revolution generates sufficient centrifugal force to overcome suspension of substrate material in a flowing electrolytic solution, the substrate material comprising a particle size of less than 20 micrometers.

2. (currently amended) An apparatus according to claim 1 wherein said electrolytic cell comprises a bowl assembly, said bowl assembly comprising:
a bowl for containing ~~[[a]]~~ the substrate material and said electrolytic solution;
a plurality of electrodes arranged in a radial array radiating outwardly from said second axis; and
means for serially applying electrical potential sequentially to said plurality of electrodes while said electrolytic cell rotates.

3. (previously presented) An apparatus according to claim 2 wherein said plurality of electrodes are electrically isolated in said bowl to have inside faces exposed to the interior of said bowl and contact portions exposed at an undersurface of said bowl, and said means for serially applying electrical potential comprises a wire wheel electrical contact disposed upon said platen in rolling contact with the undersurface of said bowl and intermittently contactable with said contact portions of said plurality of electrodes as said electrolytic cell rotates.

4. (previously presented) An apparatus according to claim 3 wherein said wire wheel electrical contact and said second axis are fixed to be collinear on a common radius of said platen while said platen rotates.

5. (previously presented) An apparatus according to claim 4 wherein the planetary revolution of said electrolytic cell, with respect to said first axis, urges the substrate material to collect by centrifugal force at a portion of said bowl maximally distanced from said first axis, while the rotation of said electrolytic cell about said second axis causes the substrate material to tumble and agitate at said portion of said bowl.

6. (original) An apparatus according to claim 1 further comprising means for imparting rotary motion, around said second axis, to said electrolytic cell by rotating said platen.

7. (previously presented) An apparatus according to claim 6 wherein said platen is rotatably mounted upon a fixed supporting shaft, and said means for imparting rotary motion comprises:
a drive gear fixed upon said shaft concentrically with said platen;
a planetary gear fixedly mounted upon a bowl and engaged with said drive gear; and
means for imparting rotary motion to said platen;
wherein when said platen is rotated, said bowl orbits around said first axis and said fixed drive gear rotates said planetary gear around said second axis.

8. (previously presented) An apparatus according to claim 2 wherein said electrolytic cell further comprises a dome assembly disposed upon said bowl, said dome assembly comprising:
a dome wall having a lower rim flange connectable to said bowl and an annular top rim defining a port; and
a helical auger flange on the inside of said dome wall and spiraling from about said rim flange to about said top rim;
wherein when said electrolytic cell is rotated in one direction about said second axis, the substrate material is urged downward by said auger flange, and when said electrolytic cell is rotated in a second direction, the substrate material is augered upward toward said port.

9. (currently amended) ~~A rotary flow-through~~ An electrodeposition apparatus comprising:
a platen rotatable about a first axis;
~~an a rotary flow-through~~ electrolytic cell rotatably mounted upon said platen and rotatable
about a second axis, said second axis being offset from and parallel to said first axis;
an electrode assembly disposable into said electrolytic cell; and
means for imparting rotary motion, around said second axis, to said electrolytic cell by
rotating said platen;
wherein when said platen is rotated and said electrolytic cell is rotated ~~faster than rotation~~
~~of said platen~~, said electrolytic cell ~~undergoes~~ undergoing planetary revolution with respect to said first
axis[.]; and
wherein said planetary revolution generates sufficient centrifugal force to overcome
suspension of substrate material in a flowing electrolytic solution, the substrate material comprising a
particle size of less than 20 micrometers.

10. (previously presented) An apparatus according to claim 11 wherein said platen is
rotatably mounted upon a fixed supporting shaft, and said means for imparting rotary motion comprises:
a drive gear fixed upon said shaft concentrically with said platen;
a planetary gear fixedly mounted upon said bowl and engaged with said drive gear; and
means for imparting rotary motion to said platen;
wherein when said platen is rotated, said bowl orbits around said first axis and said fixed
drive gear rotates said planetary gear around said second axis.

11. (currently amended) An apparatus according to claim 9 wherein said electrolytic cell
comprises a bowl assembly, said bowl assembly comprising:
a bowl for containing ~~[[a]]~~ the substrate material and said electrolytic solution;
a plurality of electrodes arranged in a radial array radiating outwardly from said second
axis; and
means for serially applying electrical potential sequentially to said plurality of electrodes
while said electrolytic cell rotates.

12. (previously presented) An apparatus according to claim 11 wherein electrical potential is
applied sequentially to individual ones of said plurality of electrodes.

13. (previously presented) An apparatus according to claim 11 wherein electrical potential is
applied sequentially to interconnected groups of said plurality of electrodes.

14. (previously presented) An apparatus according to claim 11 wherein said plurality of electrodes are electrically isolated in said bowl to have inside faces exposed to the interior of said bowl and contact portions exposed at an undersurface of said bowl, and said means for serially applying electrical potential comprises a wire wheel electrical contact disposed upon said platen in rolling contact with the undersurface of said bowl and intermittently contactable with said contact portions of said plurality of electrodes as said electrolytic cell rotates.

15. (previously presented) An apparatus according to claim 14 wherein said wire wheel electrical contact and said second axis are fixed to be collinear on a common radius of said platen while said platen rotates.

16. (previously presented) An apparatus according to claim 15 wherein the planetary revolution of said electrolytic cell, with respect to said first axis, urges the substrate material to collect by centrifugal force at the portion of said bowl maximally distanced from said first axis, while the rotation of said electrolytic cell about said second axis causes the substrate material to tumble and agitate at said portion of said bowl.

17. (previously presented) An apparatus according to claim 16 wherein said electrolytic cell further comprises a dome assembly disposed upon said bowl, said dome assembly comprising:

 a dome wall having a lower rim flange connectable to said bowl and an annular top rim defining a port; and

 a helical auger flange on the inside of said dome wall and spiraling from about said rim flange to about said top rim;

 wherein when said electrolytic cell is rotated in one direction about said second axis, the substrate material is urged downward by said auger flange, and when said electrolytic cell is rotated in a second direction, the substrate material is augered upward toward said port.

18. (currently amended) ~~A rotary flow-through~~ An electrodeposition apparatus comprising:
a platen rotatable about a first axis;
~~an a rotary flow-through~~ electrolytic cell rotatably mounted upon said platen and rotatable about a second axis, said second axis being offset from and parallel to said first axis; and
an electrode assembly disposable into said electrolytic cell;
wherein said electrolytic cell further comprises a dome assembly disposed upon a bowl, said dome assembly comprising:
a dome wall having a lower rim flange connectable to said bowl and an annular top rim defining a port; and
a helical auger flange on the inside of said dome wall and spiraling from about said rim flange to about said top rim;
wherein when said platen is rotated and said electrolytic cell is rotated, said electrolytic cell undergoing planetary revolution with respect to said first axis;
wherein said planetary revolution generates sufficient centrifugal force to overcome suspension of substrate material in a flowing electrolytic solution, the substrate material comprising a particle size of less than 20 micrometers.
and further wherein when said electrolytic cell is rotated in one direction about said second axis, substrate material is urged downward by said auger flange, and when said electrolytic cell is rotated in a second direction, the substrate material is augered upward toward said port.
~~wherein when said platen is rotated and said electrolytic cell is rotated faster than rotation of said platen, said electrolytic cell undergoes planetary revolution with respect to said first axis.~~

19. (currently amended) An apparatus according to claim 18 wherein said electrolytic cell comprises a bowl assembly, said bowl assembly comprising:
said bowl for containing ~~[[a]]~~ the substrate material and said electrolytic solution;
a plurality of electrodes arranged in a radial array radiating outwardly from said second axis; and
means for serially applying electrical potential sequentially to said plurality of electrodes while said electrolytic cell rotates.

20. (previously presented) An apparatus according to claim 19 wherein said plurality of electrodes are electrically isolated in said bowl to have inside faces exposed to the interior of said bowl and contact portions exposed at an undersurface of said bowl, and said means for serially applying electrical potential comprises a wire wheel electrical contact disposed upon said platen in rolling contact with the undersurface of said bowl and intermittently contactable with said contact portions of said plurality of electrodes as said electrolytic cell rotates.

21. (previously presented) An apparatus according to claim 20 wherein said wire wheel electrical contact and said second axis are fixed to be collinear on a common radius of said platen while said platen rotates.

22. (previously presented) An apparatus according to claim 21 wherein the planetary revolution of said electrolytic cell, with respect to said first axis, urges the substrate material to collect by centrifugal force at a portion of said bowl maximally distanced from said first axis, while the rotation of said electrolytic cell about said second axis causes the substrate material to tumble and agitate at said portion of said bowl.

23. (original) An apparatus according to claim 18 further comprising means for imparting rotary motion, around said second axis, to said electrolytic cell by rotating said platen.

24. (original) An apparatus according to claim 23 wherein said platen is rotatably mounted upon a fixed supporting shaft, and said means for imparting rotary motion comprises:

 a drive gear fixed upon said shaft concentrically with said platen;

 a planetary gear fixedly mounted upon said bowl and engaged with said drive gear; and

 means for imparting rotary motion to said platen;

 wherein when said platen is rotated, said bowl orbits around said first axis and said fixed drive gear rotates said planetary gear around said second axis.